# COURSE OUTLINE: ASR107 - AIRCRAFT SYSTEMS

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| **Course Code: Title** | ASR107: AIRCRAFT SYSTEMS |
| **Program Number: Name** | 4067: AIRCRAFT STRUCT TECH |
| **Department:** | AIRCRAFT STRUCTURAL REPAIR |
| **Semesters/Terms:** | 20W |
| **Course Description:** | In-class presentations are used to describe the various aircraft systems, their operation and the applicable servicing and maintenance tasks. Topics include fluid lines, aircraft cable construction, ice and rain protection, hydraulic systems, landing gear systems, reamers and fire protection and propulsion systems. |
| **Total Credits:** | 3 |
| **Hours/Week:** | 3 |
| **Total Hours:** | 48 |
| **Prerequisites:** | There are no pre-requisites for this course. |
| **Corequisites:** | There are no co-requisites for this course. |
| **Vocational Learning Outcomes (VLO's) addressed in this course:**<br><br>**Please refer to program web page for a complete listing of program outcomes where applicable.** | **4067 - AIRCRAFT STRUCT TECH**<br>VLO 1 Safely use the tools, equipment and identify materials needed to carry out various sheet metal repairs.<br>VLO 2 Demonstrate a working knowledge of the principles of aircraft design by applying theory and shop practice.<br>VLO 6 Carry out any repair according to specifications, stated job procedures and the requirements of the Department of Transport Regulations.<br>VLO 12 Use specialized equipment such as reamers, taps and dies to complete a detailed repair as per manufacturer`s specifications.<br>VLO 16 Demonstrate honesty and integrity to match the requirements of the aircraft industry. |
| **Essential Employability Skills (EES) addressed in this course:** | EES 1 Communicate clearly, concisely and correctly in the written, spoken, and visual form that fulfills the purpose and meets the needs of the audience.<br>EES 2 Respond to written, spoken, or visual messages in a manner that ensures effective communication.<br>EES 4 Apply a systematic approach to solve problems.<br>EES 5 Use a variety of thinking skills to anticipate and solve problems.<br>EES 6 Locate, select, organize, and document information using appropriate technology and information systems.<br>EES 7 Analyze, evaluate, and apply relevant information from a variety of sources.<br>EES 8 Show respect for the diverse opinions, values, belief systems, and contributions of others.<br>EES 9 Interact with others in groups or teams that contribute to effective working relationships and the achievement of goals.<br>EES 10 Manage the use of time and other resources to complete projects. |

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| | EES 11 Take responsibility for ones own actions, decisions, and consequences. |
| **Course Evaluation:** | Passing Grade: 70%, B |
| **Books and Required Resources:** | Aviation Maintenance Technician Handbook<br>ISBN: 978-1-56027-716-3<br><br>Aviation Maintenance Technician Handbook - Airframe<br>ISBN: 978-1-56027-950-1 |

**Course Outcomes and Learning Objectives:**

| **Course Outcome 1** | **Learning Objectives for Course Outcome 1** |
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| 1. Discuss and research basic aircraft hydraulic systems | 1.1 Identify and explain the function of the various components that make up the hydraulic system including the different types of hydraulic fluids. |
| **Course Outcome 2** | **Learning Objectives for Course Outcome 2** |
| 2. Discuss and research basic aircraft fluid flex lines. | 2.1 identify using S.R.M., the types of material used to fabricate aircraft tubing for a<br>specific system<br>2.2 discuss the advantages of using aluminum tubing versus steel tubing<br>2.3 discuss the advantage of using steel tubing<br>2.4 identify where both aluminum and steel tubing would be used<br>2.5 using S.R.M., identify flexible hose material construction<br>2.6 identify where flexible hose would be used<br>2.7 discuss identification codes used to describe rubber hose construction<br>2.8 identify and install marker tapes found on aircraft tubing<br>2.9 complete using hand tools, flares found on aluminum and steel aircraft tubing, including<br>both single and double flares<br>2.10 discuss the reasons why leakage occurs during testing |
| **Course Outcome 3** | **Learning Objectives for Course Outcome 3** |
| 3. Discuss and research basic aircraft deicing and anti-icing systems. Daily maintenance and deicing boot replacement will also be discussed. | 3.1 describe the types of ice build up on aircraft systems<br>3.2 discuss the result of ice build up on aircraft<br>3.3 identify methods of eliminating ice formation<br>3.4 research how deicer boot operation occurs<br>3.5 identify the advantages of using neoprene on deicer boots<br>3.6 discuss preventative maintenance procedures used to extend the life of deicer boots<br>3.7 complete the procedures you would follow when removing deicer boots<br>3.8 describe the procedures you would follow when installing deicer boots |
| **Course Outcome 4** | **Learning Objectives for Course Outcome 4** |
| 4. Discuss and research basic aircraft landing gear systems. | 4.1 Identify and explain the various components that make up a complete landing gear system including wheels floats and skies. |
| **Course Outcome 5** | **Learning Objectives for Course Outcome 5** |
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| 5. Discuss and research basic aircraft fire protection systems. | 5.1 Identify and explain the various components that make up a complete fire protection system. |
| **Course Outcome 6** | **Learning Objectives for Course Outcome 6** |
| 6. Discuss and research basic aircraft propulsion systems. | 6.1 Identify and explain the various components that make up a propulsion system including turbine engines, reciprocating engines and propellers. |
| **Course Outcome 7** | **Learning Objectives for Course Outcome 7** |
| 7. Discuss and research basic aircraft cable types, care and fabrication. | 7.1 Identify and explain the various parts that make up a cable system.<br>7.2 Explain how to fabricate and test cable strength.<br>7.3 Explain how to inspect a cable system. |
| **Course Outcome 8** | **Learning Objectives for Course Outcome 8** |
| 8. Discuss and proper use and care of reamers. | 8.1 Identify the different types of reamers and explain reamer type selection.<br>Explain proper reamer care and maintenance. |

**Evaluation Process and Grading System:**

| Evaluation Type | Evaluation Weight |
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| Assignments | 10% |
| Test #14 | 30% |
| Test #15A | 30% |
| Test #15B | 30% |

**Date:** August 29, 2019

**Addendum:** Please refer to the course outline addendum on the Learning Management System for further information.